

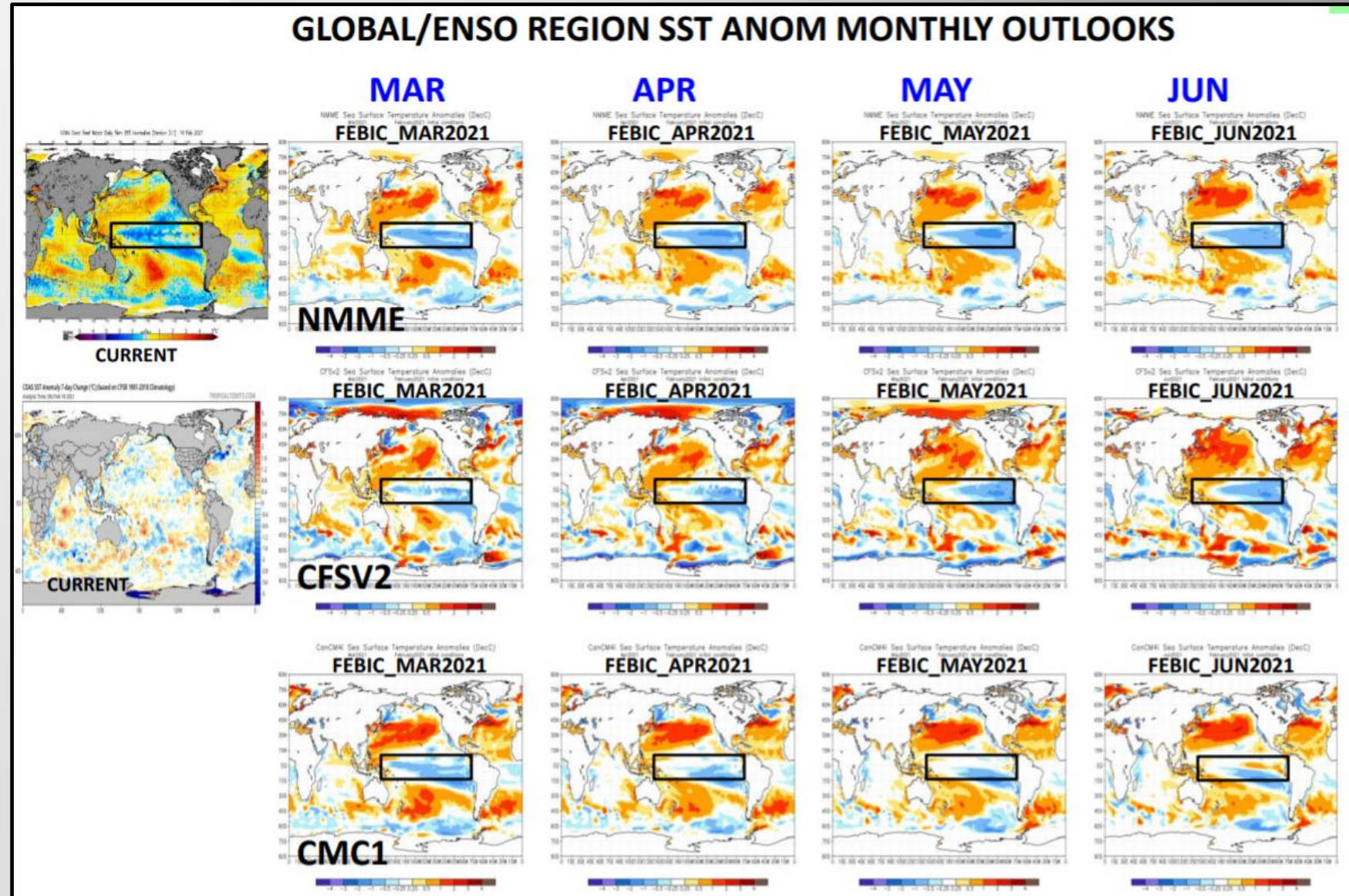
EASTERN AREA

2021 Spring Fire Potential Outlook



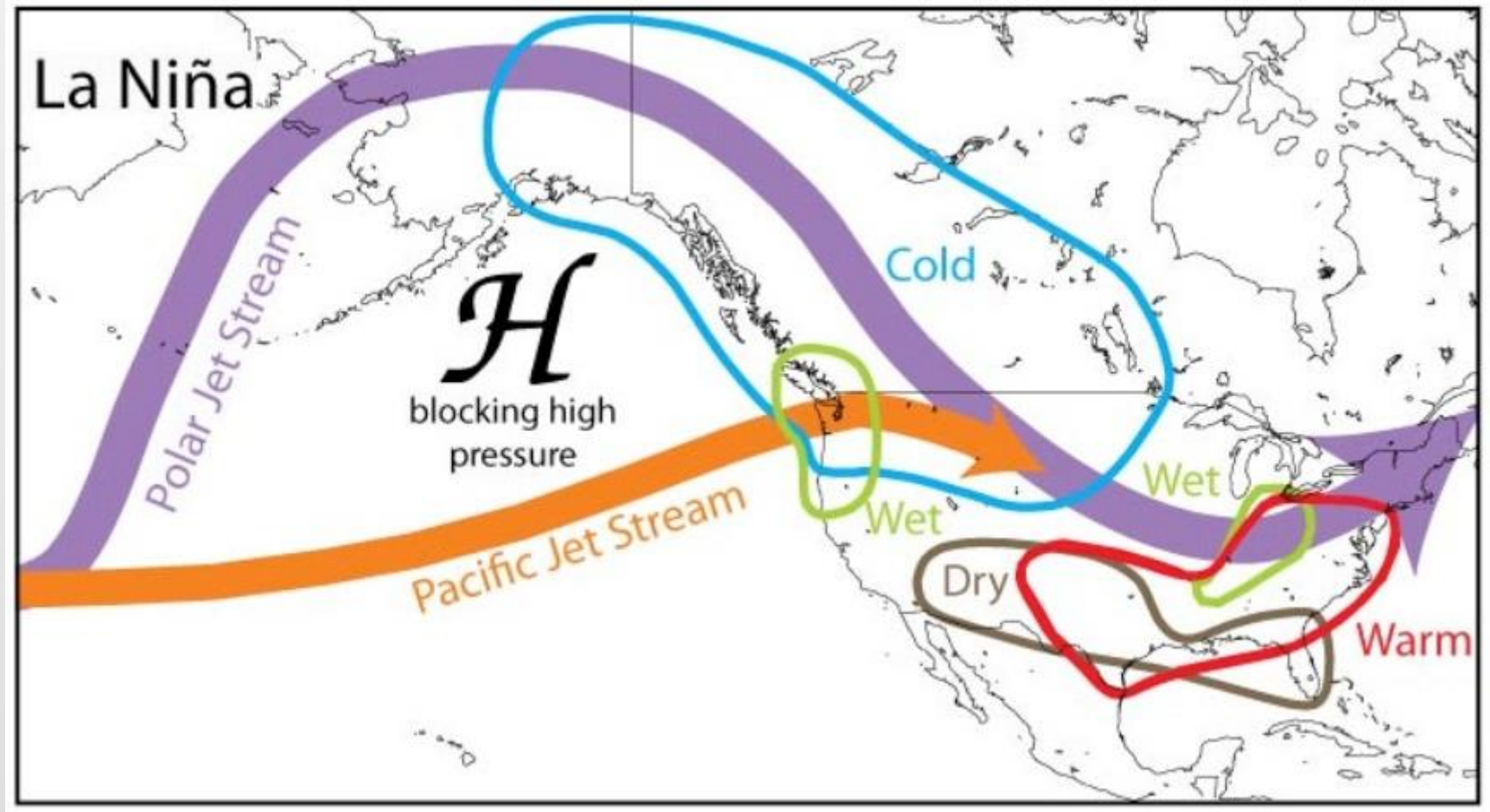
ENSO (EL NINO/LA NINA) TRENDS

- ENSO refers to central Pacific Sea Surface Temperatures (SSTs)
- La Nina (Cooler than normal SSTs) expected to persist through Spring of 2021 before weakening by early summer by longer term models



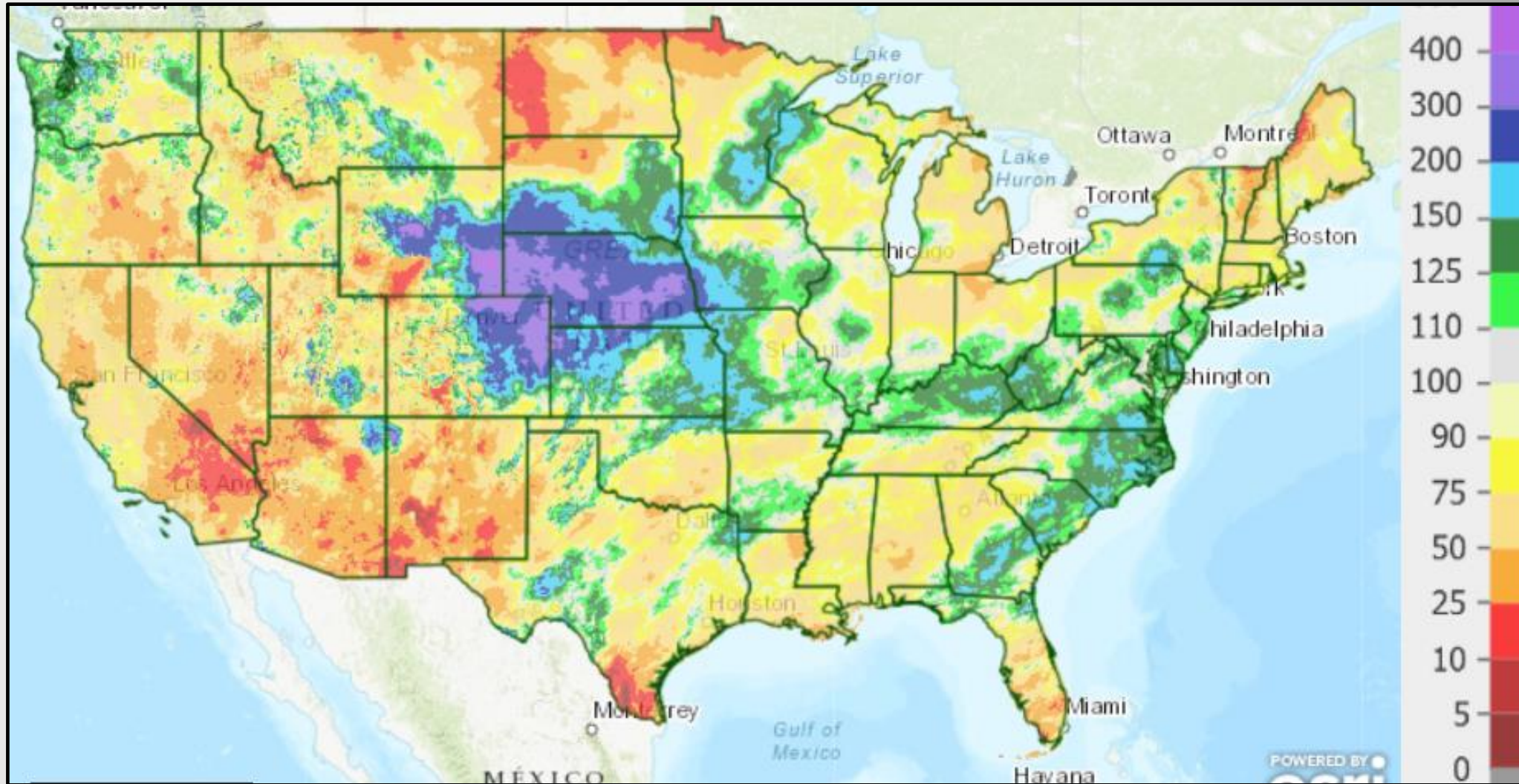
LA NINA NORTH AMERICA WEATHER TRENDS

- ENSO refers to central Pacific Sea Surface Temperatures (SSTs)
- La Nina (Cooler than normal SSTs) expected to persist through Spring of 2021 before weakening by early summer by longer term models
- Other SST regimes affect overall weather patterns: (North Atlantic Oscillation, Pacific Decadal Oscillation, Arctic Oscillation)



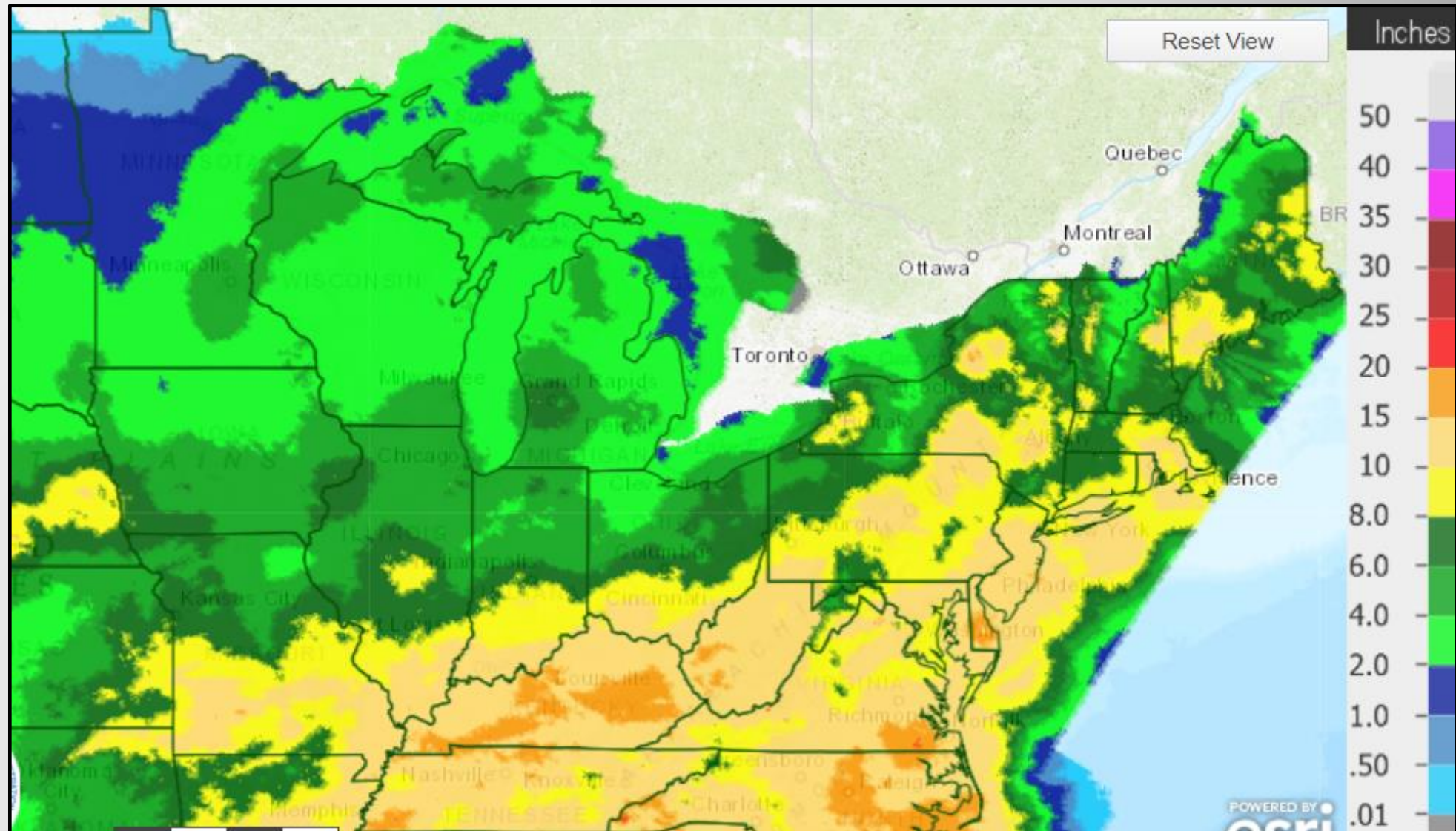
90 DAY PERCENT OF NORMAL PRECIPITATION

March 16, 2021



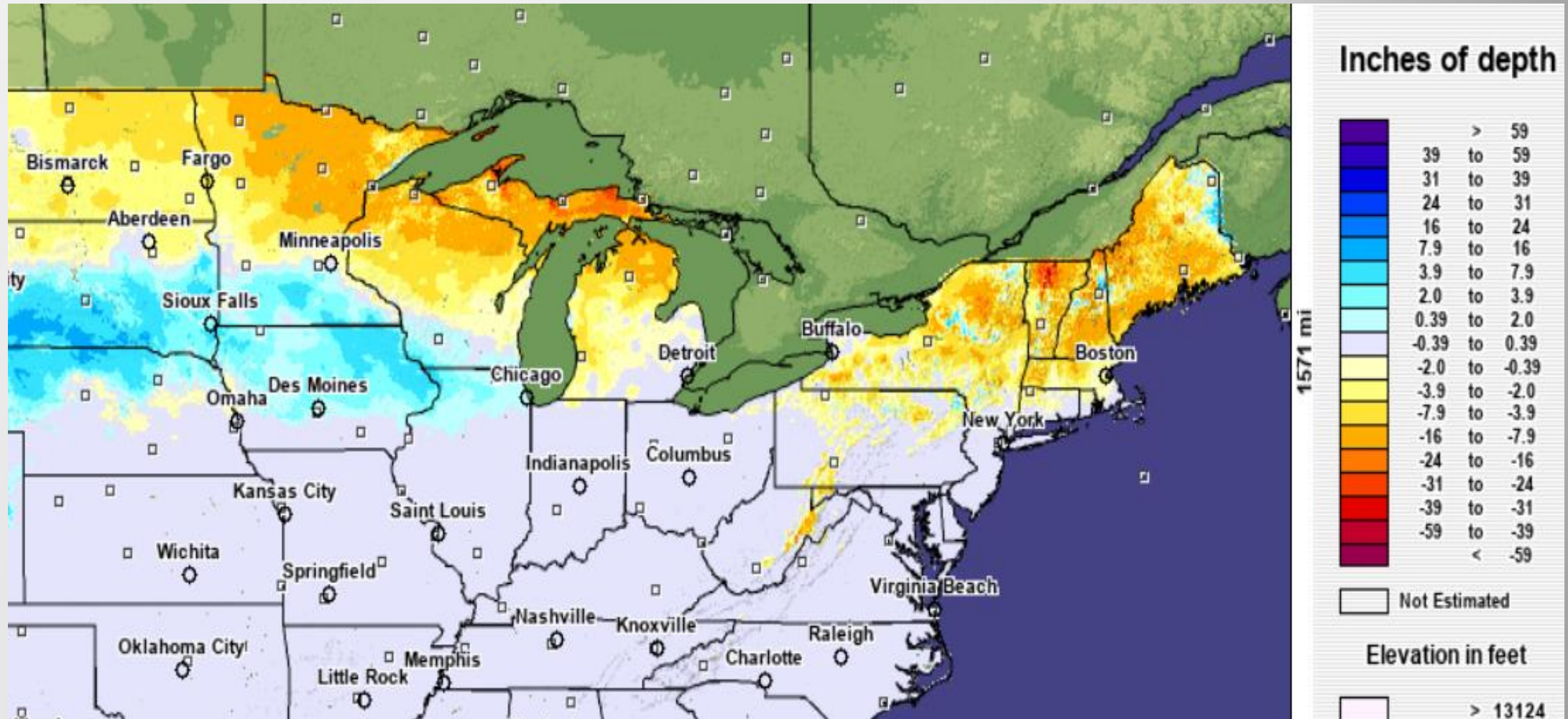
90 DAY TOTAL ACCUMULATED PRECIPITATION

March 16, 2021

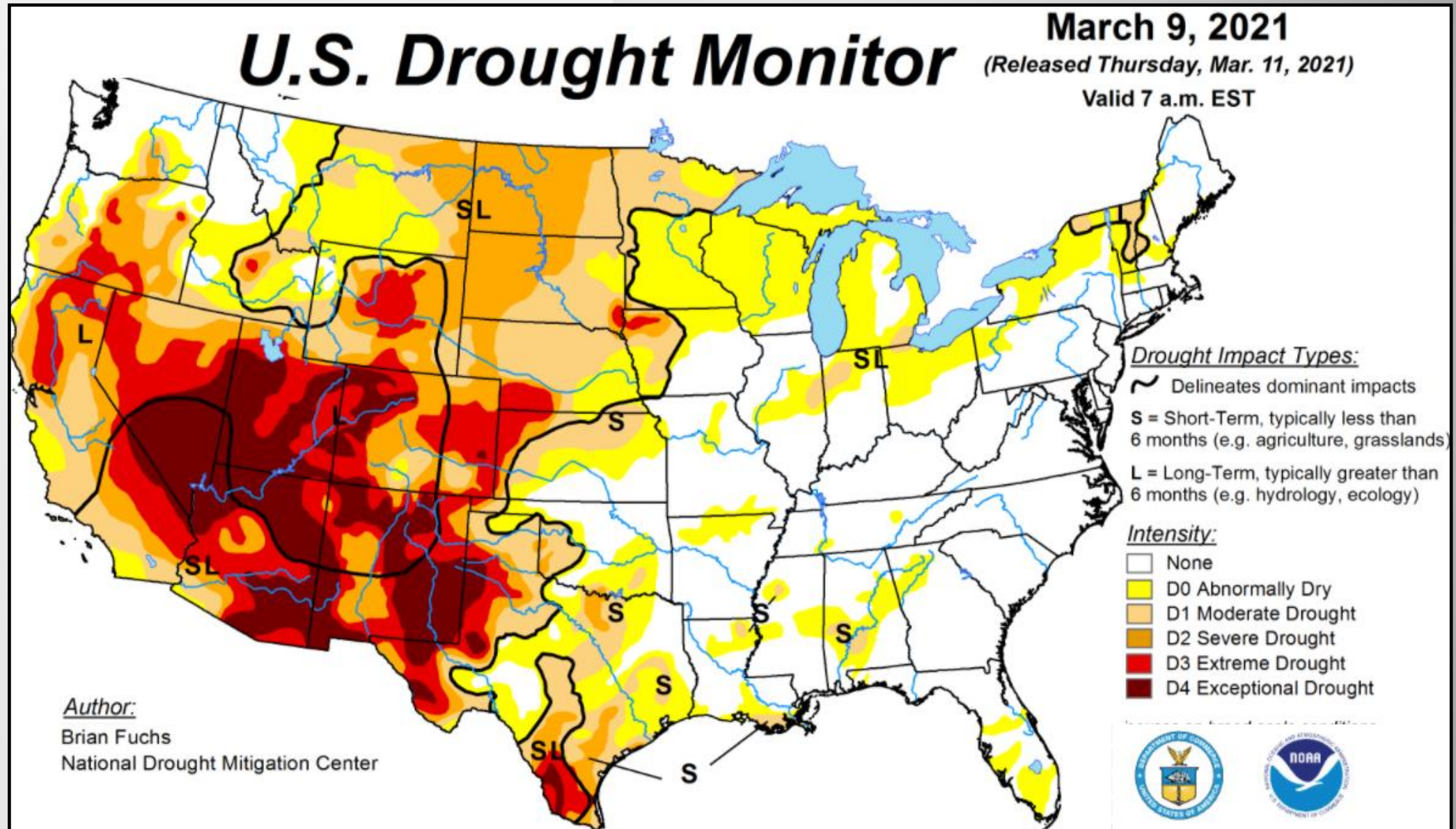


MODELED SNOW DEPTH DEPARTURE FROM NORMAL

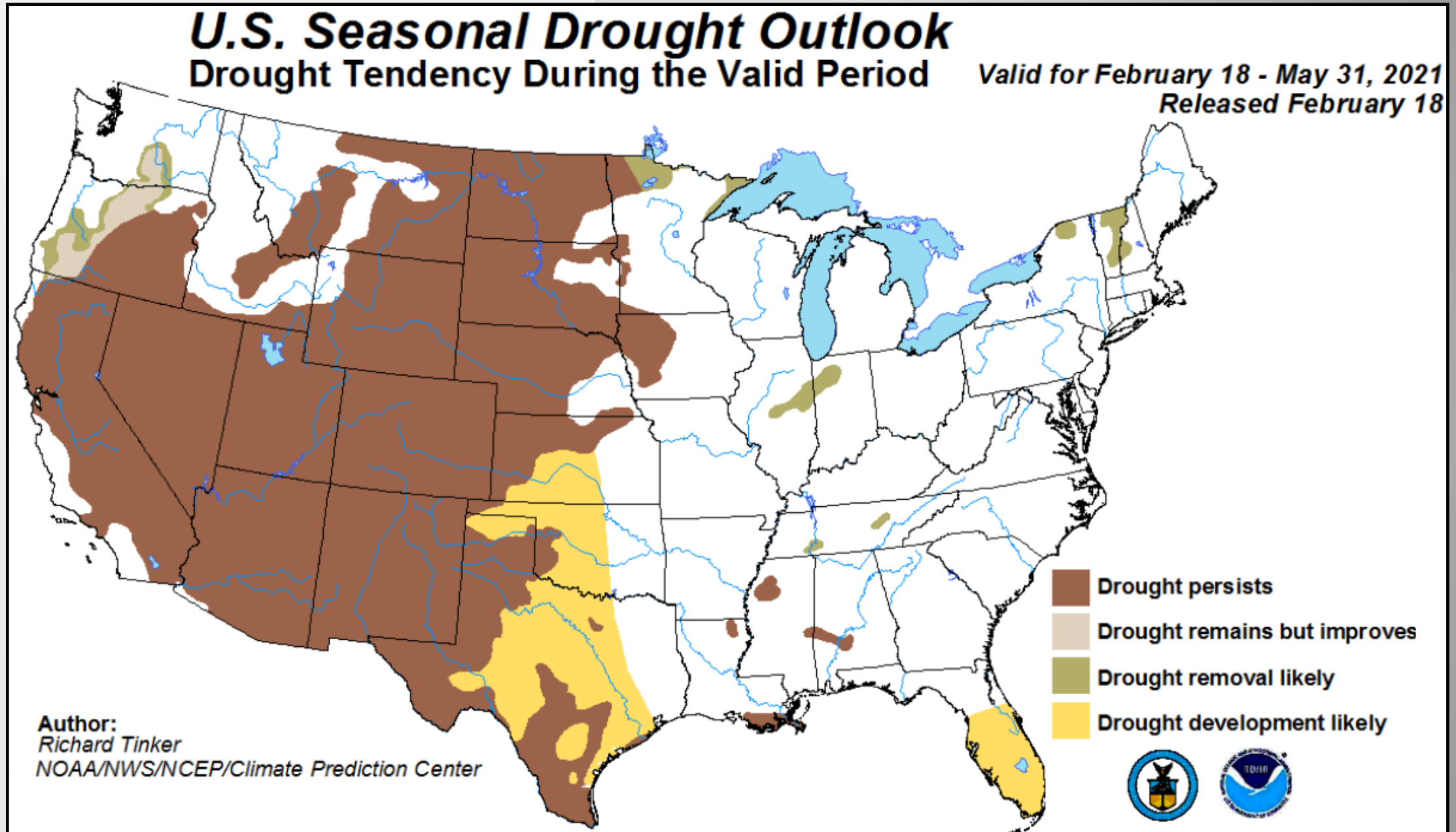
March 16, 2021



US DROUGHT MONITOR (MARCH 9, 2021)

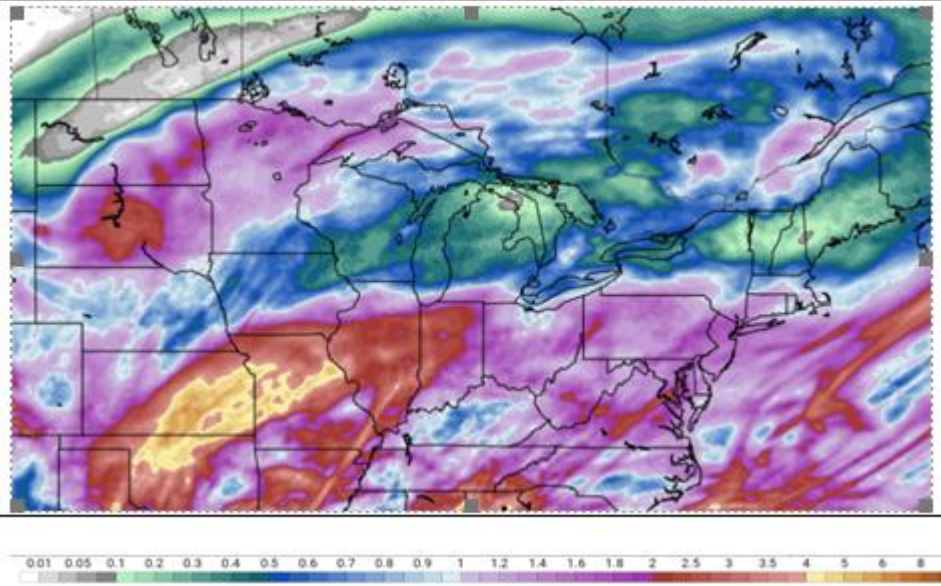


US SEASONAL DROUGHT OUTLOOK THROUGH MAY 2021

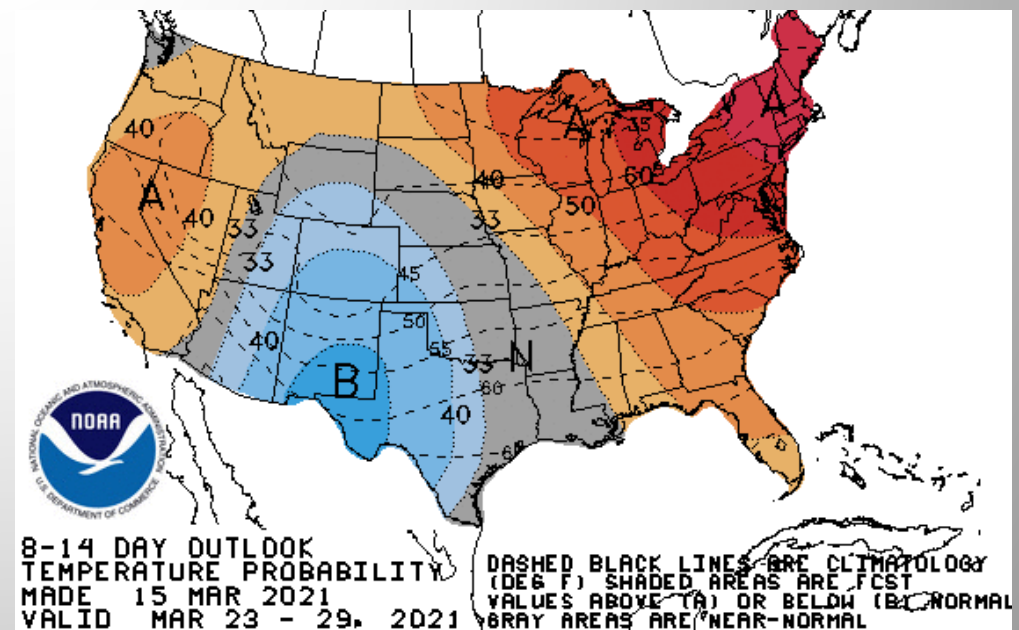
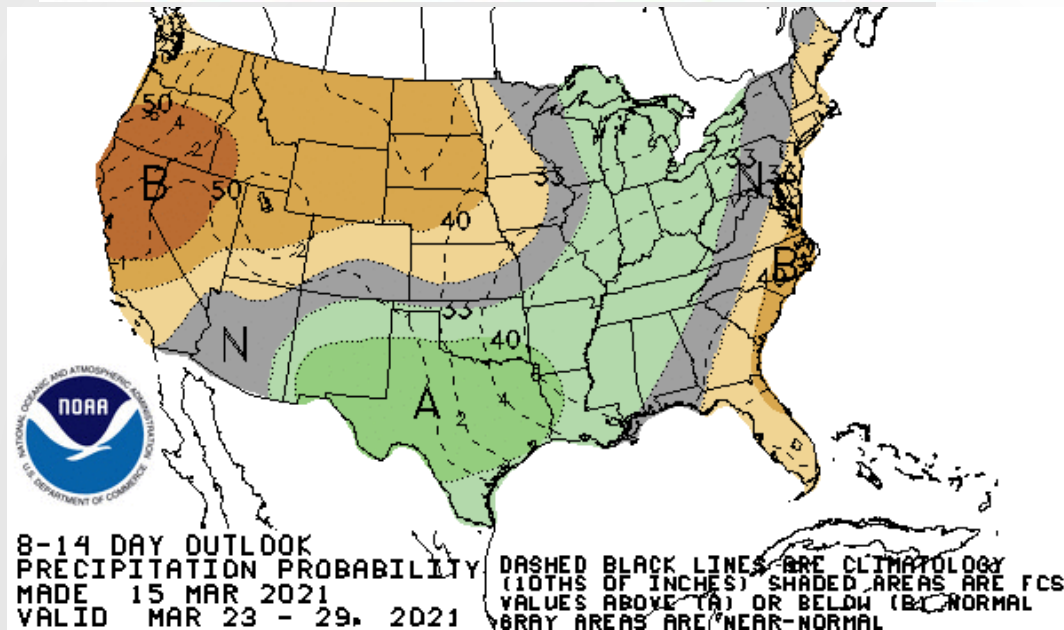
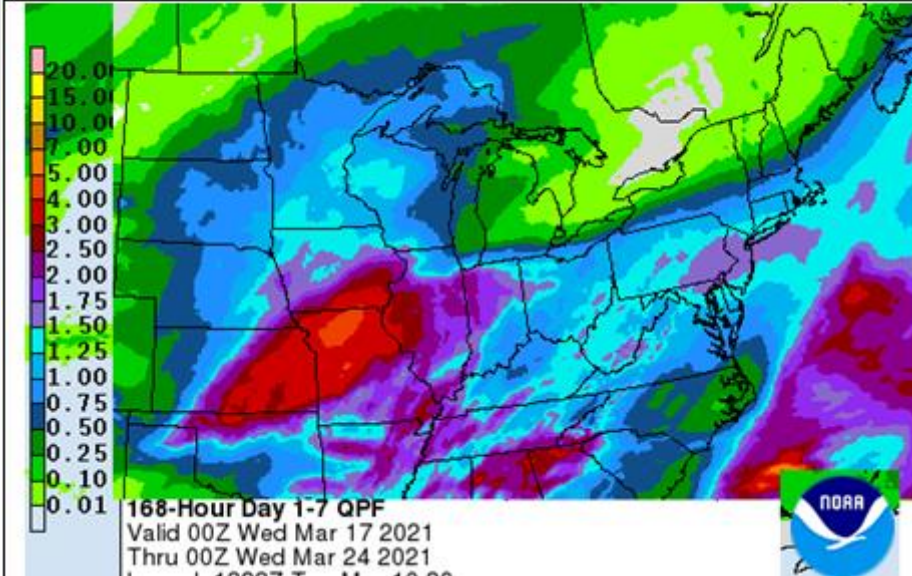


WEATHER TRENDS INTO THE END OF MARCH 2021

European Model Total Precipitation Forecast through 3/25/2021



7 Day Total Precipitation Forecast



PREDICTIVE SERVICES TEMP/PRECIP OUTLOOKS

Predictive Services Temperature and Precipitation Outlooks

Temperature



Below Normal = 

Above Normal = 

Precipitation



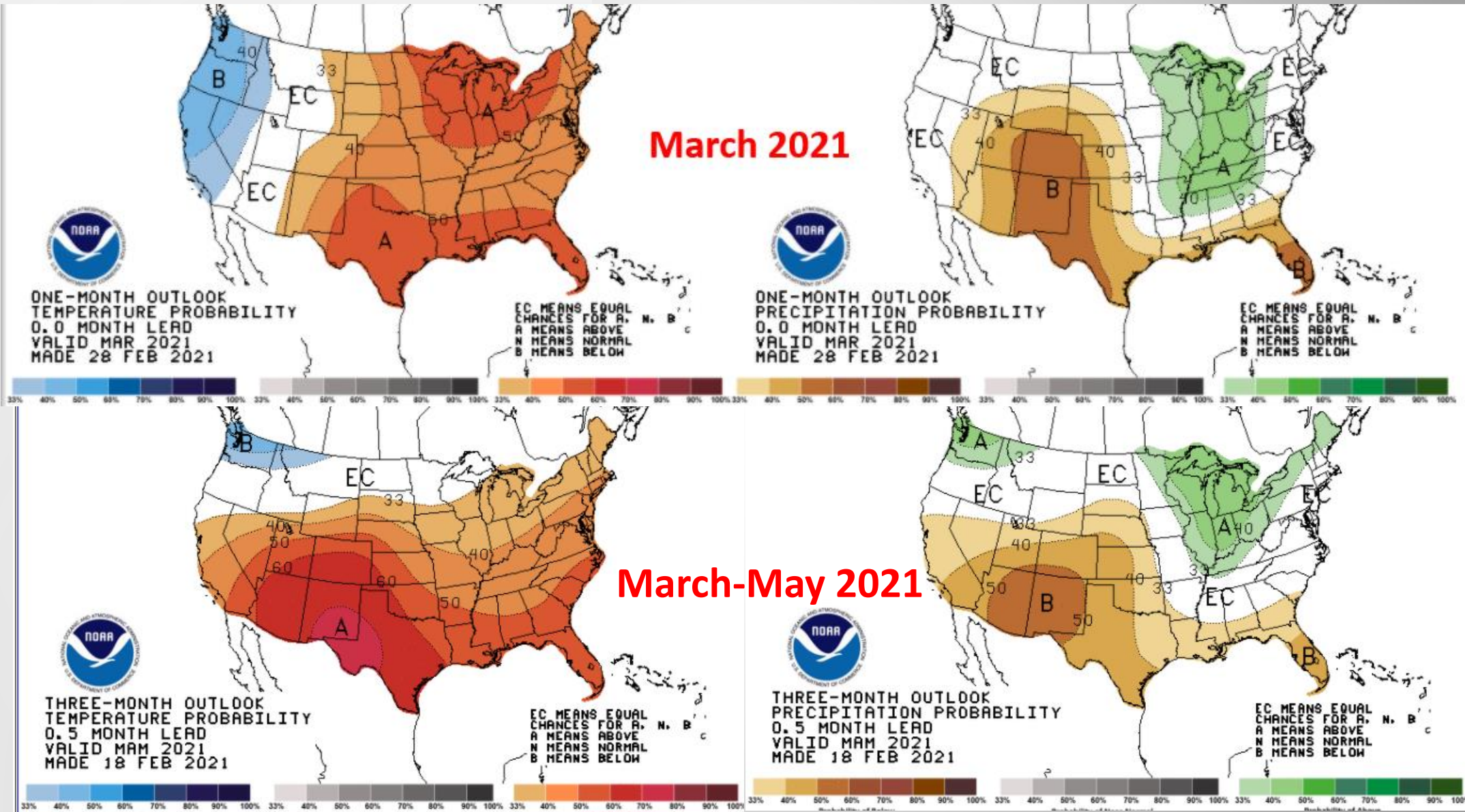
Below Normal = 

Above Normal = 

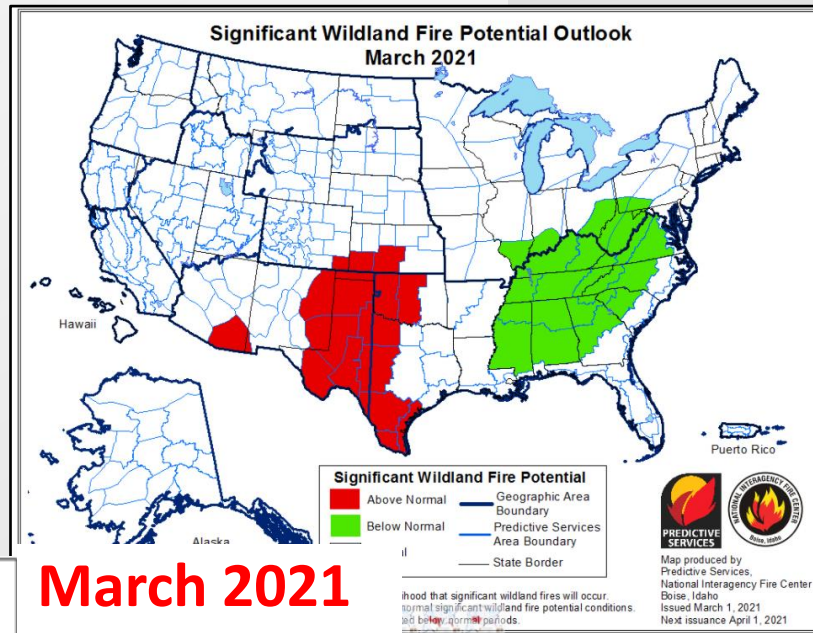




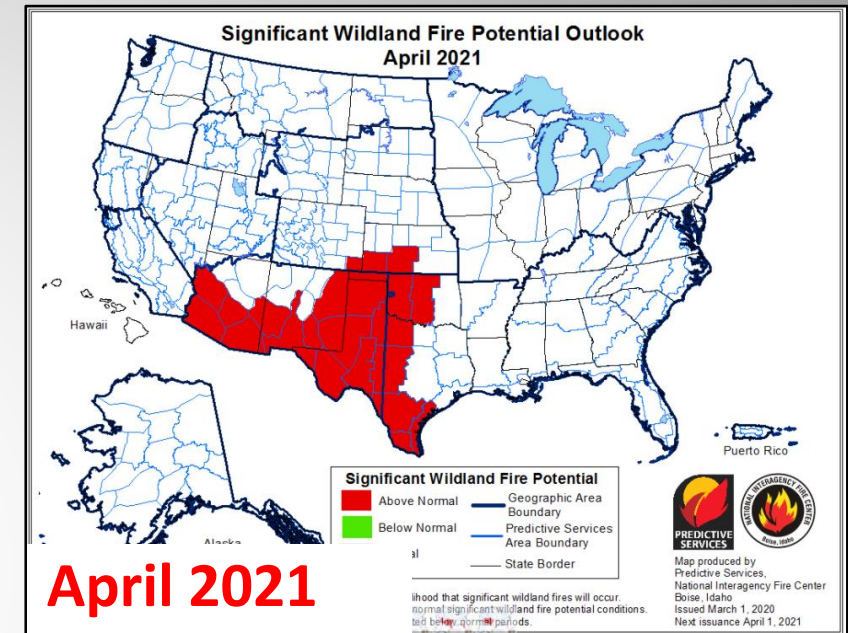
NOAA CLIMATE PREDICTION CENTER TEMP/PRECIP OUTLOOKS



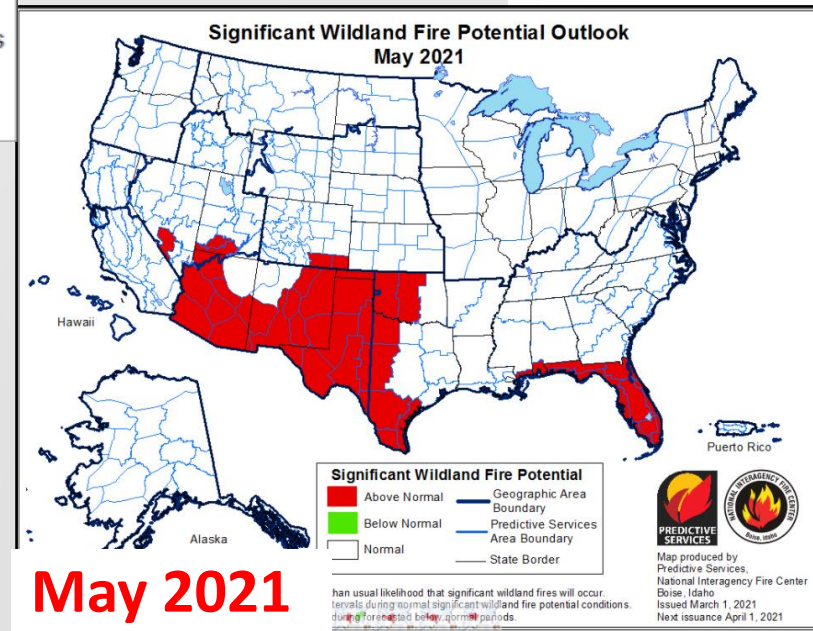
PREDICTIVE SERVICES FIRE POTENTIAL OUTLOOK MAPS



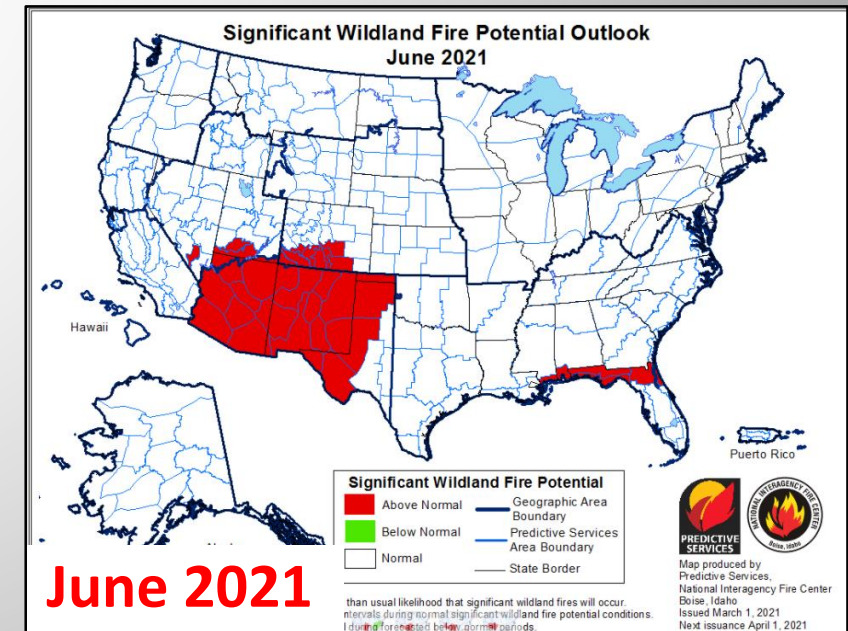
March 2021



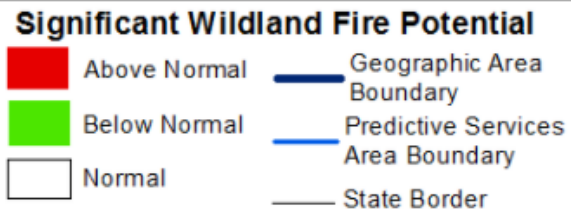
April 2021



May 2021



June 2021





WHAT WE KNOW



- The snow across the Eastern Area always melts.
- The vegetation (fuel) is always fully cured in the spring and is widely available to burn
- These two things mean there is always a spring fire season of some kind.
- Day to day weather patterns next spring, summer, fall will be a significant driver in fire activity.
- Human activity will also contribute greatly to the level of activity we see next year.
- Long term dryness/drought is consistently a precursor to large fire potential and mop-up difficulty, more so in the summer/fall than the spring.

A faint, stylized map of North America, including the United States, Canada, and Mexico, is visible in the background. The map is rendered in a light gray color, showing the outlines of the continents and some major water bodies.

CHANGES TO THE NFDRS2016 MODEL

THE NEED FOR A NEW MODEL

- Legacy (1978/88) NFDRS model is overly complex
- Legacy model relies on user input (daily observation editing, herbaceous fuel stage transition for 1978 models, etc.)
- Legacy model cannot run on a 24 hour grid
- New science, sensors and algorithms are available to advance fire danger rating

THREE MAJOR CHANGES TO THE NFDRS16 MODEL

- Live Fuel Moisture Model
- Dead Fuel Moisture Model
- Fuel Models

LIVE FUEL MOISTURE MODEL

- The new NFDRS2016 model/system uses a value called the **Growing Season Index or GSI**
 - GSI runs automatically with no user input and is derived from weather and calendar dates info
 - The new live fuel moisture model no longer relies on green-up/freeze dates or season codes and greenness factors

NEW DEAD FUEL MOISTURE MODEL

- NFDRS16 uses the Nelson Model
 - The Nelson model incorporates Solar Radiation data from the RAWs sensors
 - The Nelson model no longer requires daily entries of ‘State of the Weather’



SNOW FLAG IS REQUIRED FOR NFDRS2016

- Snow Flag affects calculations of both dead and live fuel moisture
- Snow Flag is either 0 (no snow) or 1 (snow).
- When the Snow Flag is 1,
 - Set Air Temperature to 32°F / 0°C
 - Set Relative Humidity to 99.99%
 - Set Solar Radiation to 0
 - Previous day's Precipitation Amount is carried forward

Not automated yet but is being worked on!

NFDRS FUEL MODELS

- Consolidated Fuel Models down to 5!
- Fuel models are based on fire behavior models with some modifications

V - Grass

W - Grass/Shrub

X - Shrub

Y - Timber

Z - Slash



SUMMARY OF SIMPLIFICATION S

- No need for:
 - Climate class
 - **No** required manual entries:
 - **Green-up, freeze and dormant dates**
 - **State-of-the-weather in edited daily obs**
 - All of the revisions in the 1988 system
 - **Deciduous WAF, season codes, greenness factors, 1hr=10hr**
 - Weighed sticks
 - Fosberg 1 and 10 hour fuel moisture model
 - Burgan live fuel moisture model
 - Dynamic Load Transfer
- Total of 35 fuel models eliminated

BENEFITS OF CHANGES:

- Fully automated NFDRS
 - No missing data due to lack of edited R/O or SOW
- More consistent (less human intervention)
- Improved response to drought
- More easily applied to gridded weather



QUESTIONS/COMMENTS?

